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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/022,715

12/18/2001

Masahiro Kodama

P/1071-1513

2113

7590

09/03/2004

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EXAMINER

EASTHOM, KARL D

ART UNIT

PAPER NUMBER

2832

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/022,715	KODAMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Karl D Easthom	2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-17 are rejected under 35 U.S.C. 102(b) as anticipated by Kumada et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kumada in view of Ogose, or Furukawa et al., or Kitsui et al. (JP200-106304). Kumada discloses the claimed invention at Figs. 1, 4 and 5, with glass layer 25 on a surface, and electrodes 24, 21, 22, with barium titanate at col. 6. The glass layers 25 are impregnated where they are fired under pressure and temperature at col. 6, lines 48-60. That is, inherently the glass is impregnated since there is pressure and temperature, according to applicant's specification, and bonding would not occur where there is no diffusion. Adhesion requires an amount of diffusion. Also, Furukawa at col. 3 provides more evidence that diffusion occurs by sintering. As an alternative, Ogose discloses using glass diffusion on a multilayer barium titanate chip similar to that of Kumada in order to prevent moisture from penetrating into the sintered compact, so that it would have obvious in view of Ogose to employ that density for the purpose of forming a PTC device having excellent characteristics as disclosed at par. 20 thereof, said density allowing glass to impregnate. Furukawa discloses a glass diffused covering 13 for thermistors in general at Fig. 3. Furukawa discloses that such a covering is needed to protect the chip at col. 1, lines 5-25. Similarly, Kitsui at the abstract discloses in general a chip thermistor such as that of Furukawa having diffused glass 7 on the thermistor surfaces to protect it. For claims 7, 12, no sintering agent is disclosed in Kumada. Alternatively, it would have been obvious in view of Ogose not to

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employ it where none is disclosed in either reference as a requirement, suggesting it is not required. Regarding claims 16-17, only the 103 rejection applies, as Kumada lacks the temperature of the softening point. Ogoose discloses employing such a glass at par. 21 of the machine translation for the purpose of ensuring glass diffusion upon the sintered product. And as applicant admits, “the surface of ceramic electronic components is conventionally coated with a ...glass to form a protective layer in order to maintain moisture, heat or weather resistance” – page 7 of the 12/3/03 remarks. Ogoose provides motivation by disclosing a glass coating for a barium titanate ceramic component to fill up the pores and to thus prevent humidity from entering and to prevent degradation.

3. Claims 1-11 are allowable primarily because a relative density of 90 percent or less is not disclosed or suggested in the claimed combination.

4. Applicant's arguments filed 7/23/4 have been fully considered but they are persuasive only as to the allowed claims above. Applicant argues that Kumada fails to inherently disclose impregnation, or the density. Applicant argues that “impregnation” is not met merely by glass layers internal to the device; that is, some diffusion is required. This argument is accepted so that diffusion is required. To this it is noted that Applicant argued previously that impregnation requires more than surface diffusion, but this is not correct according to the normal use of the word, and such an argument is an admission that some diffusion occurs into the surface. As to the lack of inherency where the Examiner also alleged diffusion to meet impregnation, evidence is provided by such an admission, and also, evidence of diffusion occurs in Furukawa where heating and placing the glass on the surface creates diffusion. Similar evidence is in applicant's disclosure. Applicant points out that 100 degrees heating

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would not produce diffusion, but there is disclosed heating at 800 degrees in Kumada to obtain a laminate at the top of col. 7. Also, the pressure and heat is exerted on a paste, not a ceramic.

All layers are in a paste form, and heated under pressure and heat to form the ceramic laminate, so that it would be impossible not to have diffusion when two pastes are pressed together.

Moreover, adhesion requires an amount of diffusion and is evidence thereof. As to what is meant by "compatible" references, it is only meant that since the ceramics are similar and differ only by a dopant, then materials for the other portions of the device that contact the ceramic, such as electrodes and covers, etc., would chemically and structurally sound materials from a materials standpoint.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D Easthom whose telephone number is (571) 272-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Karl D Easthom  
Primary Examiner  
Art Unit 2832

KDE